CLAIMS

1. A semiconductor device comprising a high voltage production circuit that produces a high voltage, characterized by further comprising a high voltage waveform conversion circuit provided at the subsequent stage of the high voltage production circuit that gradually outputs a high voltage by converting the waveform of the high voltage of the high voltage production circuit.

2. The semiconductor device according to claim 1, further comprising a memory cell in which data rewriting is performed by using a high voltage, characterized in that the high voltage waveform conversion circuit gradually applies the high voltage to the memory cell.

3. The semiconductor device according to claim 1 or 2, characterized in that the high voltage waveform conversion circuit comprises a delay circuit that delays the high voltage of the high voltage production circuit, and a voltage conversion switching element that lowers the delayed high voltage by a predetermined value.

4. The semiconductor device according to claim 3, characterized in that the voltage conversion switching element is an N-type MOS transistor in which the high voltage delayed by the delay circuit is input to the gate thereof and the high voltage that has undergone

conversion by being lowered by a predetermined value is output from the source thereof.

5. The semiconductor device according to claim 1 or 2, characterized in that the high voltage waveform conversion circuit comprises a test signal input section and, when a test signal is input to the test signal input section, the high voltage waveform conversion circuit outputs the high voltage of the high voltage production circuit without converting the waveform.

6. The semiconductor device according to claim 5, characterized in that the high voltage waveform conversion circuit comprises a delay circuit that delays the high voltage of the high voltage production circuit, a voltage conversion switching element that lowers the delayed high voltage by a predetermined value, and a short-circuit switching element provided parallel to the voltage conversion switching element that short-circuits the voltage conversion switching element when the test signal is input to the test signal input section.

7. The semiconductor device according to claim 6, characterized in that the voltage conversion switching element is an N-type MOS transistor in which the high voltage delayed by the delay circuit is input to the gate thereof and the high voltage that has undergone

conversion by being lowered by a predetermined value is output from the source thereof, and in that the short-circuit switching element is a P-type MOS transistor that is turned ON and outputs the high voltage of the high voltage production circuit as is when the test signal is input to the test signal input section.